

REMARKS

Status of the Claims

Upon entry of the amendment above, claims 1-11 and 13-37 will be pending, claims 1, 7, and 33 being independent.

Summary of the Office Action

Claim 9 is rejected under 35 USC §112, second paragraph, as being indefinite, as stated on page 2 of the Office action. The Examiner comments that the term Lycra should be replaced with appropriate "general terminology."

Claims 1-3, 5-8, 10, 11, and 15-19 are rejected under 35 USC §102(b) as being anticipated by MIDDLETON (U.S. Patent No. 5,787,502), as set forth on pages 2-4 of the Office action.

Claims 10, 12, 13, and 19 are rejected under 35 USC §103(a) as being unpatentable over MIDDLETON, as set forth on pages 4 and 5 of the Office action.

Claims 4 and 9 are rejected under 35 USC §103(a) as being unpatentable over MIDDLETON in view of HUNTER (U.S. Patent No. 5,898,934), as set forth on pages 5 and 6 of page 5 of the Office action.

Claims 14 and 20 are rejected under 35 USC §103(a) as being unpatentable over MIDDLETON in view of HUNTER and BOLTON (British Patent No. 974,426), as set forth on page 6 of the Office action.

Response to the Office Action

A. Summary of Amendment

In the amendment above, Applicants have amended the following portions of the specification: paragraph 0019, to describe a feature of the invention, consistent with the original disclosure, including the drawing, and for providing antecedent basis for a limitation appearing in new claims 27, 31, 32, and 36; paragraph 0021, to describe that which is shown in Fig. 3; and paragraph 0028, to provide an antecedent for the expression "torso portion" in claim 25.

Claim 1 has been amended to incorporate therewithin the subject matter of former claim 12 (*i.e.*, the outer layer comprising neoprene), claim 12 being canceled. In addition, claim 1 has been amended to specify that the underlying layer of the garment of the invention comprises stretch fibers and that the underlying layer has a lesser thickness than that of the outer layer and an elasticity greater than that of the outer layer.

Claim 7 has been rewritten in independent form.

Dependent claim 9 has been amended to delete reference to Lycra.

Dependent claim 13 has been amended for consistency with the amendment that has been made to parent claim 1 and to change its dependency from claim 11 to claim 1.

In addition, new claims 21-37 have been added, claim 33 being independent.

B. Withdrawal of Rejection Under 35 USC §112, Second Paragraph

Reconsideration and withdrawal of the rejection under 35 USC §112, second paragraph, is requested.

As instructed in the rejection, Applicants have amended claim 9 by replacing the term "Lycra" with general terminology rather than the trademark name.

Specifically, claim 9 has been amended to refer to "elasthane fibers."

To facilitate the Examiner's consideration of this issue, Applicants have attached hereto certain pages from *TECHSTYLE 2004, the Guide to Activewear Fibres and Fabrics*, from *SPORTPREMIERE Magazine*. Specifically, attached are the cover page, page 5 (Contents page), and page 66 (detailed description of Lycra®), the latter of which refers to "stretch fibers" and "elasthane fibers."

In view of the amendment, therefore, withdrawal of the rejection is requested.

C. Withdrawal of Rejections Under 35 USC §102(b) and 35 USC §103(a) Based Upon MIDDLETON Alone

Reconsideration and withdrawal of the rejection of claims 1-3, 5-8, 10, 11, and 15-19 under 35 USC §102(b), as well as the rejection of claims 10, 13, and 19 under 35 USC §103(a), based upon MIDDLETON alone, are requested.

The rejection of claims 1-3, 5, 6, 8, 10, 11, and 15-19 is requested at least for the reason that claim 1 has been amended, for example, so as to incorporate the subject matter of dependent claim 12, *i.e.*, the outer layer comprising neoprene. Claim 12 had been rejected under §103(a).

The first part of Applicants' reply below, therefore, addresses the issue of nonobviousness, *i.e.*, whether one skilled in the art would have modified the disclosure of MIDDLETON in a manner that would have resulted in Applicants' claimed invention.

In addition, Applicants address issues relating to the rejection of claim 7, which has been rewritten in independent form, above, regarding anticipation by MIDDLETON.

1. Claimed Invention Would Not Have Been Obvious from MIDDLETON

Based upon Applicants' review of the disclosure of MIDDLETON, taken together with the comments provided in the Office action, Applicants submit that the invention specified in claims 1-3, 5-8, 10, 11, 13, and 15-19 would not have been obvious over MIDDLETON, whether considered alone or in combination with other cited documents. Accordingly, reconsideration and withdrawal of the rejection of those claims is kindly requested.

As mentioned above, claim 1 has been amended to incorporate therewithin the subject matter of former claim 12 (*i.e.*, the outer layer comprising neoprene).

In addition, claim 1 has been amended to specify that the underlying layer of the garment of the invention comprises an elastic material comprising stretch fibers (formerly referred to as "Lycra" in claim 9); that the underlying layer has a lesser thickness than that of the outer layer; and that the underlying layer has an elasticity greater than that of the outer layer.

As disclosed in the illustrated embodiment of Applicants' invention shown in Fig. 3, the underlying layer 4 is thinner than the outer layer 5. This difference in thickness is also consistent with the textual description, such as that of paragraph 0021, *e.g.*, whereby the underlying layer is described as being thin, elastic and a non-folding material, so that such layer can lie flat against the wearer's skin as he/she moves.

Further, the elastic underlying layer 4 is shown in Fig. 3 as extending flat beneath the foldable and heavier neoprene-based outer layer 5. In addition, and in contrast with the thin elastic underlying layer 4, as explained in paragraph 0026, the outer layer is the *most rigid* of the multi-layered zones 3 of the garment.

These limitations added to claim 1 are consistent with objectives of the invention, *viz.*, that the neoprene-containing outer layer is relatively thick and not as elastic, such that the outer layer would not be most comfortable to the skin of the wearer. Therefore, the underlying layer of the invention is provided to be relatively thin and elastic so as to stay in close contact with the skin so that the skin is not irritated by the outer layer.

MIDDLETON's garment includes an inner layer 3 and an outer layer 2. As mentioned in column 6, lines 40-43, an air space 6 separates the inner layer 3 and the outer layers 2 when the garment is dry (Fig. 1). When the garment is wet, the two layers are forced together (Fig. 5).

The two layers of MIDDLETON's garment are sealed at the apertures (*i.e.*, the openings through which the arms, head and torso would extend; see column 6, lines 53-59, and column 7, lines 7-9).

The underlying layer 3 of MIDDLETON, "constituting a lining for the first garment part 2" (column 5, lines 49-50), which contacts the wearer's skin, includes a closed-cell neoprene sheet 9 having a thickness of about 5 mm with perforations 10 extending through hollow-domed chambers 13, the domes projecting above the outer surface of the sheet 9 by about 2.5 mm, with the domes having an internal height of about 6.0 mm (column 6, lines 21-29). The sheet, with domes, then, has a thickness of about 7.5 mm.

Of course, as disclosed, the underlying layer of MIDDLETON's garment is thicker and would likely be less elastic than the outer layer, *i.e.*, which is contrary to the invention in Applicants' claim 1. MIDDLETON's Figs. 1, 3, and 4 attest to these characteristics.

In column 2, lines 45-47, MIDDLETON explains that his outer layer (*i.e.*, "outer garment part") is preferably constructed "from a conventional fabric"; in lines 58-62 of column 2, MIDDLETON explains that the fabric of the outer layer will also normally have "sufficient durability, launderability and machinability so as to make manufacture, cleaning and maintenance of the garment acceptably simple and convenient."

The disclosure of MIDDLETON's outer layer, mentioned in the immediately preceding paragraph, is cited for the purpose of traversing an allegation regarding the likelihood that MIDDLETON would have considered the possibility of using neoprene for the outer layer (as well as for the underlying layer), as suggested on page 5, lines 5-8 of the Office action.

That is, MIDDLETON would *not* likely have considered that possibility because, for example, immediately after making the point in lines 58-62, column 2, that the outer layer is to be a "conventional fabric" that is "simple and convenient" regarding manufacture, cleaning, and maintenance, he contrasts the outer layer with a description of the *underlying layer*, *i.e.*, the "second garment part" (see column 2, line 63, to column 5, line 13).

Still further, even if a neoprene layer were to be considered for the outer layer of MIDDLETON's garment, one skilled in the art would not have considered making the outer layer *thicker* than the inner layer, as Applicants have claimed.

Indeed, as explained above, MIDDLETON's neoprene sheet 7 has a thickness of about 5 mm and the domes (above chambers 13) project above the sheet 7 by about 2.5 mm. Of course, if a neoprene sheet were to be considered as an outer layer (which Applicants submit would not have been considered by one skilled in the art), there would be no reason at all to have made it any *thicker* than the 5 mm thickness of sheet 7, inasmuch as there would have been no reason to have employed the domes.

Accordingly, not only would it would not have been obvious to have used a neoprene sheet as an outer layer, it would not have been obvious to have modified the MIDDLETON garment so that the outer layer would have been thicker than the underlying layer.

Still further, claim 1, as amended, refers to the underlying layer having a greater elasticity than that of the outer layer. No such difference is taught or suggested by MIDDLETON. If any difference were to exist in the MIDDLETON garment, the outer layer would be more elastic than the underlying layer, particularly since the underlying layer of MIDDLETON's garment includes the thicker neoprene layer. Further, when the MIDDLETON garment becomes wet, as shown in Fig. 4, if the outer layer 2 were to be less elastic than the underlying layer 3, Applicants submit that the outer layer would not as easily assume the tight-fitting position over the underlying layer so as to close off the ducts 12 in the domes.

At least for the foregoing reasons, reconsideration and withdrawal of the rejection of claims 1-3, 5-8, 10, 11, 13, and 15-19 is requested.

2. Invention of Claim 7 is Not Anticipated by MIDDLETON

The invention specified in claim 7 is not anticipated by MIDDLETON. Accordingly, reconsideration and withdrawal of the rejection thereof is kindly requested.

Applicants' claim 7 describes details of their invention that are not taught or suggested by MIDDLETON. Specifically, claim 7 refers to the periphery of the "fixing zone" for the underlying layer (*i.e.*, defined by the periphery P1 in Applicants' Fig. 4) to be the same as the perimeter of the bending zone of the outer layer (*i.e.*, defined by the periphery P2 in Applicants' Fig. 4), and that a "development surface" of the outer layer (*i.e.*, defined as surface S2 in Applicants' Fig. 3) is *larger* than that of the underlying layer (*i.e.*, defined as surface S1 in Applicants' Fig. 3).

The subject matter of claim 7, then, encompasses that which is exemplarily illustrated in Applicants' Figs. 3 and 4, as well as that which is described in paragraphs 0017-0019 of the specification of the instant application. The subject matter is not believed to be described by MIDDLETON. For example, there would not appear to be a bending zone of an outer layer that is demarcated by a perimeter where the outer and underlying layers are fixed together, which creates a looseness in the outer layer to allow movement in the bending zone.

Accordingly, reconsideration and withdrawal of the rejection is kindly requested.

D. Withdrawal of Rejection Under 35 USC §103(a) Based Upon MIDDLETON and HUNTER

Reconsideration and withdrawal of the rejection of claims 4 and 9 under 35 USC §103(a) based upon a combination of MIDDLETON and HUNTER is requested.

Claim 4 specifies that the underlying layer is in the form of a yoke and that the "fixing zone is arranged on edges of the yoke."

Initially, Applicants submit that the rejection of claims 4 and 9 should be withdrawn at least for the reasons relating to claim 1, as explained above.

The rejection focuses on the "yoke" *per se*, while omitting a discussion regarding the "fixing zone" of claim 4 (*i.e.*, the connection between the outer and underlying layers) being on the edges of the yoke.

The underlying and outer layers of MIDDLETON's garment are to be fixed together at the apertures, *i.e.*, at the wrists, ankles, and neck (column 6, lines 54-56).

Therefore, Applicants submit that HUNTER would not suggest to one skilled in the art that MIDDLETON's garment a modification so that, instead of fixing the inner and outer layers at the apertures, they are to be connected somewhere else, that somewhere else being specifically along the edges of a yoke, as specified in Applicants' claim 4.

At least for the reasons given above, reconsideration and withdrawal of the rejection based upon the combination of MIDDLETON and HUNTER is requested.

E. Withdrawal of Rejection Under 35 USC §103(a) Based Upon MIDDLETON, HUNTER, and BOLTON

Reconsideration and withdrawal of the rejection of claims 14 and 20 under 35 USC §103(a) based upon a combination of MIDDLETON, HUNTER, and BOLTON is requested.

The rejected claims refer to the so-called "functional folds", shown in Applicants' Fig. 3 and described in paragraph 0025 of the specification of the instant application.

Initially, Applicants submit that the rejection of claims 14 and 20 should be withdrawn at least for the reasons relating to claim 1, as explained above.

The rejection is based upon the allegation that BOLTON could be relied upon by one skilled in the art (with regard to BOLTON's Figs. 2a, 2b and page 1, lines 63-39 of BOLTON's description, Applicants assume).

However, BOLTON fails to teach or suggestion folds as specified in Applicants' claims 14 and 20.

BOLTON relates to enhancing the mobility of the wearer of a "pressure" suit, made of an inflatable and flexible material. However, BOLTON makes no provision for certain zones having inner and outer layers, in the manner of Applicants' invention.

Instead, BOLTON's garment is made of a plurality of panels that are constructed in a way that bending is made more easy. Fig. 1 of BOLTON shows the panels of a leg portion of the garment, separated, Figs. 2(a), 2(b) showing the leg portion with the panels assembled together. In fact, in the right column on the first page of BOLTON it is explained that "These portions are sewn together to form the tube shown in Figure 2a in which the seams are in broken lines."

To enhance mobility, for example, BOLTON has the apex A of the triangular/wedge-shaped knee piece 13 located at the bending axis of the knee. However, there are no separate inner and outer layers.

The passage of BOLTON in column 2, lines 59-63 of page 1, is clear: the edges of the panel 13, having the same length as edges 11a and 12a, are to be joined directly to these edges. There is no overlapping whatsoever.

In Fig. 2a of BOLTON it can be seen that the construction proposed by BOLTON results in bulges and wrinkles that are directly in contact with the user. Accordingly, the disclosure of BOLTON is not relevant.

Moreover, it is specified in Applicants' claim 1 that at least the underlying layer is made of an elastic material. Following the reasoning of the rejection, if the suit of BOLTON were

to be made of an elastic material, it would be at least the panels 11 and 12 which would be elastic. This suit being intended to be used as a *pressure* suit, it would then transform into a balloon under the pressure difference.

In fact, it is precisely because of the lack of elasticity of the material of the suit of BOLTON that the suit excess material (13) is needed for enabling movement.

At least for the reasons given above, reconsideration and withdrawal of the rejections based upon the combination of MIDDLETON, HUNTER, and BOLTON is requested.

F. New Claims 21-37

New claims 21-37 have been added, of which claim 33 is independent.

New claim 21 depends from claim 1 and specifies that the underlying layer comprises elasthane fibers.

New claim 22 depends from claim 1 and further specifies that the neoprene of the outer layer has a thickness of about 3 millimeters to about 8 millimeters.

New claim 23 provides a clear distinction from the structural arrangement of the multi-layered garment of MIDDLETON. In claim 23, which depends from claim 1, Applicants specify that the outer layer extends throughout areas of the garment beyond the underlying layer. Claim 23, then, is directed to that feature of the invention by which the "protective zone" of the multi-layered zones is localized near one or more joints of the wearer, as can be seen in the various drawing figures of the instant application. By contrast, in MIDDLETON, the underlying layer 3 constitutes a lining for the outer layer 2 (col. 5, lines 49-50, and column 6, lines 62-66). Together, therefore, the layers constitute the constituent material from which the MIDDLETON garment is made.

New claim 24, also depending from claim 1, is also directed to the localized nature of the underlying layer of the multi-layered arrangement. Specifically, claim 24 calls for the underlying layer to have a periphery localized at "said protective zone," the underlying layer being fixed to the outer layer at the periphery of the underlying area, the fixing zone itself comprising the periphery. Of course, this feature is not disclosed by MIDDLETON.

New claim 25, also depending from claim 1, is directed to an embodiment of the invention exemplarily illustrated in Applicants' Fig. 5, *i.e.*, the underlying layer comprising a tubular single sleeve having a two end edges, a first of which is adapted to extend around an arm of the wearer and which is fixed to the outer layer, a second of which is fixed to a torso portion of the outer layer. In Fig. 5, the latter limitation ("fixed to a torso portion ...") is shown schematically by a stitching at the end of the leftmost occurrence of reference numeral "8". Of course, this feature is not disclosed by MIDDLETON.

New claim 26 depends from claim 1 and specifies that each protective zone is arranged to be opposite a respectively different joint of the wearer of the garment.

New claim 27, depending from claim 1, specifies that the "protective zone" of the one multi-layered zone comprises "*a single free zone*" by which the underlying layer is non-attached to the outer layer. That is, as seen, *e.g.*, in Applicants' Fig. 3, between the left and right boundaries of the perimeters P1, P2, the underlying and outer layers are not attached to each other. In this context, then, "single" means "one and only one."

New claim 28 depends from claim 1 and specifies that the protective zone has a size and shape adapted to cover a substantial area of the joint of a wearer of the garment. This claim distinguishes the invention from any interpretation of MIDDLETON whereby one might posit that the porous woven fabric layer 8 of his garment could be interpreted to be an underlying layer and the neoprene layer 7 could be interpreted to be an outer layer. The "protective zone", if it were to so called in such an interpretation of MIDDLETON's disclosure, would be only 12 mm in diameter (column 6, line 30), which could *not* be fairly characterized as having a "size and shape adapted to cover a substantial area of the joint of a wearer of the garment."

New claim 29 depends from independent claim 7 and includes limitations that had been added to independent claim 1, which limitations have been addressed above in connection with Applicants' traverse of the rejection of claim 1.

New claims 30-32 correspond to dependent claims 26-28, but depend (directly or indirectly) from claim independent 7 rather than claim 1.

New claim 33 is independent. Rather than specifying "at least one multi-layered zone," claim 33 refers to "a plurality of discrete spaced-apart multi-layered zones," each of which is "localized to cover a different respective protective zone of a plurality of protective zones of a wearer of the garment." In addition, each of the multi-layered zones is described in particularity. For example, each is described as including (1) an outer layer that includes neoprene; (2) an underlying layer comprise elastic fibers adapted to contact the skin of the wearer; (3) the underlying layer have a thickness less than the thickness of the outer layer; (4) the underlying layer have an elasticity greater than the elasticity of the outer layer; (5) the underlying layer is fixed relative to the outer layer in the fixing zone; and (6) in the different respective protective zones, the underlying layers of the plurality of multi-layered zones are not attached to the outer layers of the multi-layered zones to allow free movement therebetween.

Finally, new claims 34-37 depend from claim 33 (directly or indirectly) and include limitations found in certain ones of the aforementioned new claims which depend from claim 1 or claim 7.

SUMMARY AND CONCLUSION

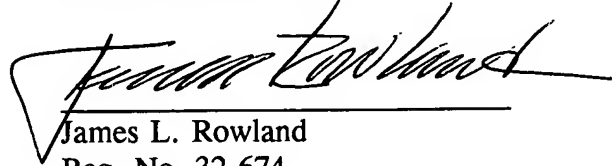
The grounds of rejection advanced in the Office action have been addressed and are believed to be overcome. Reconsideration and allowance are respectfully requested in view of the amendment and remarks above.

A check is enclosed for payment of a claim fee. No additional fee is believed to be due at this time. However, the Commissioner is authorized to charge any fee required for acceptance of this reply as timely and complete to Deposit Account No. 19-0089.

Further, although no extension of time is believed to be necessary at this time, if it were to be found that an extension of time were necessary to render this reply timely and/or complete, Applicants request an extension of time under 37 CFR §1.136(a) in the necessary increment(s) of month(s) to render this reply timely and/or complete and the Commissioner is authorized to charge any necessary extension of time fee under 37 CFR §1.17 to Deposit Account No. 19-0089.

Any comments or questions concerning this application can be directed to the undersigned at the telephone or fax number given below.

Respectfully submitted,
Benoît SAILLET et al.



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Attachment: Cover page, page 5 (Contents page), and page 66 (detailed description of Lycra®) of *TECHSTYLE 2004, the Guide to Activewear Fibres and Fabrics*, from *SPORTPREMIERE Magazine*

SPORT première
MAGAZINE

TECHSTYLE

LE GUIDE DES MATIÈRES DE LA MODE ACTIVE THE GUIDE TO ACTIVEWEAR FIBRES AND FABRICS

2004

- ☐ MODE et
- ☐ TECHNOLOGIE
- ☐ FASHION &
- ☐ TECHNOLOGY

Sommaire

Contents

CÔTÉ PRATIQUE...

06

INDEX DES MATIÈRES
Fabric index

08

INDEX DES FABRICANTS
Manufacturer's index

38

PROPRIÉTÉS DES FIBRES
NATURELLES ET SYNTHÉTIQUES
Comparing natural
and synthetic fibers

40

COMMENT CONSTRUIRE
UN SYSTÈME MULTICOUCHES
How to build a layering system

42

COMMENT SE REPÉRER
Comparing systems

44

FICHES, MODE D'EMPLOI
Guide to fibers and fabrics

46

LES MATIÈRES DE A À Z
Fibers and fabrics
from A to Z

99

DICTIONNAIRE
DES TERMES TECHNIQUES
Dictionary

103

GLOSSAIRE
Glossary

104

RÉPERTOIRE
Directory



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Linel

TECH

PRODUCTEUR: Fillattice Spa (Italie)
FAMILLE CHIMIQUE: Elasthané à base polyéther.
TITRE: de 11 dtex à 3 750 dtex.
PRESENTATION: Transparent et semi-opaque.
SECTION: Multifilament.
UTILISATION: Nu ou guipé (simple ou double guipage).
LABEL: Oeko-tex standard 100.
ELONGATION: 530 à 580% (moyenne).

STYLE

CARACTERISTIQUES: La troisième marque de fil élasthané en Europe se développe essentiellement dans le domaine de la lingerie, des maillots de bain et des vêtements de sports. De nouvelles déclinaisons s'adressent à des applications précises: Linel Comfort pour les articles chaussants (bas et collants); une version antichlore pour les maillots de bain et le dernier-né Linel TP développé pour les couches-culottes. La matière est réputée pour sa main soyeuse.

OBSERVATIONS DE LA REDACTION: Entreprise intégrée verticalement, l'Italien Fillattice est présent dans les domaines de la production de machine outils, de fil élasthané (commercialisé sous la marque Linel, Linel Comfort et Linel TP) jusqu'à la maille au travers de sa filiale française Rossignol (qui utilise la fibre dans sa gamme Lineltex).



TECH

PRODUCER: Fillattice Spa (Italy)
CHEMICAL GROUP: Elasthané polyether base.
YARN COUNT: 11 dtex to 3,750 dtex.
PRESENTATION: Clear and semi-clear.
SECTION: Fused multifilament.
USE: Plated or covered (single or double).
LABEL: Oeko-tex standard 100.
ELONGATION: 530 to 580% (average).

STYLE

CHARACTERISTICS: The third-ranking European producer of elasthané is mainly present in the areas of intimate apparel, swimwear and active sportswear. New developments are designed to address specific markets: Linel Comfort for hosiery, a chlorine-resistant version for swimwear and the most recent Linel TP for use in diapers. Linel is appreciated for its silky hand.

COMMENTS: A vertically integrated company, Fillattice operates in machine production, elasthané yarn production (marketed under the Linel, Linel Comfort and Linel TP brands) down to knitting. The group owns a knitting facility in France, belonging to its subsidiary Rossignol, that uses the stretch fiber in its Lineltex range of fabrics.

Lycra

TECH

PRODUCTEUR: DuPont Textiles & Interiors
FAMILLE CHIMIQUE: Elasthané et autres.
PRESENTATION: Opaque ou transparent.
TITRE: 11 à 2 500 dtex. Les plus couramment employés sont les 22 et 44 dtex.
SECTION: Multifilament.
ELONGATION: < 600%.

STYLE

CARACTERISTIQUES: Révolution chez DuPont, le label Lycra s'étend à toute fibre stretch qu'elle soit en élasthané ou non. Le groupe a obtenu, pour le Lycra bi-composé T-400, destiné à remplacer les polyamides et polyester texturés, le classement de nouvelle fibre générique (elasterell-p) et présente une nouvelle déclinaison, le T-403.

OBSERVATIONS DE LA REDACTION: Symbole fort des nombreux changements au sein du leader mondial des fibres synthétiques (DTI réalise un CA de 6,5 Md\$), la marque Lycra qui avait été déposée pour "une fibre élasthané" s'applique maintenant au monde plus vaste des "solutions stretch". Une marge de liberté qui permet à DuPont de jouer la carte de l'extensibilité dans une plus vaste palette de produits.



TECH

PRODUCER: DuPont Textiles & Interiors
CHEMICAL GROUP: Elasthané, and others.
PRESENTATION: Opaque or transparent.
YARN COUNT: 11 to 2,500 dtex. The most frequently used are the 22 and 44 dtex.
SECTION: Multifilament.
ELONGATION: < 600%.

STYLE

CHARACTERISTICS: Revolution at DuPont, the Lycra label covers all stretch fibers, whether they are made of elasthané or not. The group has obtained a new generic fiber classification (elasterell-p) for its bicomponent Lycra T-400 that improves on texturized polyamides and polyesters. The company is introducing a new version of the fiber T-403, that targets socks end-uses.

COMMENTS: Symbolic of the many changes inside the world's leading synthetic fiber group (the DTI division boasts annual sales of USD 6.5 billion), the Lycra brand, which originally had been registered as an "elasthané fiber," is now used for any fiber delivering "stretch solutions." This added measure of liberty is designed to help DuPont further reinforce its position in the stretch market and continue to develop the end-uses of the most well known fiber brand in the world.

Lyocell

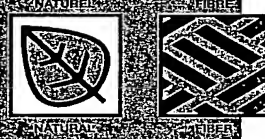
TECH

PRODUCTEUR: Lenzing (Autriche)
FAMILLE CHIMIQUE: Lyocell
TITRE: 1,1 dtex à 3,3 dtex, longueur de fibre 40 mm.
RETENTION D'EAU: 65%.
TENACITE: Entre 29 et 35 cN/tex au mouillé.
ENTRETIEN: 60°C, nettoyage à sec.

STYLE

CARACTERISTIQUES: Nouvelle génération de fibres cellulosiques (famille des viscoses), le Lyocell présente plusieurs améliorations. Après le Modal, qui avait déjà franchi une étape vers une meilleure résistance et un processus de fabrication plus propre, le Lyocell va encore plus loin en termes de souplesse et de résistance à l'état mouillé. La fibrillation de la fibre permet une large variété de touchers duveteux, tandis que la version Lyocell LF (fibrillation bloquée) offre de nouvelles opportunités notamment dans la maille.

OBSERVATIONS DE LA REDACTION: Nouvelle famille dans le monde des fibres artificielles, le lyocell a redonné de l'élan aux fabricants de viscose, comme Lenzing. Fibre plus soyeuse, plus souple, ses qualités tactiles comme ses performances techniques sont supérieures de loin à celles de la viscose.



TECH

PRODUCER: Lenzing (Austria)
CHEMICAL GROUP: Lyocell
YARN COUNT: 1.1 dtex to 3.3 dtex; fiber length: 40 mm.
WATER RETENTION: 65%.
TENACITY WHEN WET: Between 29 and 35 cN/tex.
WASH & CARE: 60°C, dry clean.

STYLE

CHARACTERISTICS: A new generation of cellulosic fibers (viscose family), Lyocell has introduced a number of improvements. After Modal, a fiber featuring enhanced wet tenacity and a cleaner production process, Lyocell offers higher performances in terms of suppleness and resistance wherwet. For aesthetics, the fiber's fibrillation can be used for varied surface effects; while Lyocell LF (low fibrillation) offers new opportunities, particularly in knits.

COMMENTS: Lyocell, a new artificial fiber family, has opened new perspectives to viscose producers such as Lenzing. Silkier and more supple, its handle and technical performance are much better than those of viscose.

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